

CLAIMS

1. An integrated gas valve comprising:

a plurality of opening/closing valves in each of which a valve element is brought into contact with and separated from a valve seat by an actuator to communicate and shut off a valve port with and from a valve chamber, each of the opening/closing valves including a first passage formed through a valve main body so as to be branched midway from the valve port and a second passage formed in the valve main body to extend from an inlet port to the valve chamber,

wherein the plurality of opening/closing valves are arranged in line to form a main passage in which the first passages are connected to each other in series directly or through a connecting passage and the second passage of each opening/closing valve is connected to the main passage through the valve chamber and the valve port.

2. An integrated gas valve comprising:

a plurality of opening/closing valves in each of which a valve element is brought into contact with and separated from a valve seat by an actuator to communicate and shut off a valve port with and from a valve chamber, each of the opening/closing valves including a first passage formed through a valve main body so as to be branched midway from the valve port and a second passage formed in the valve main body to extend from an inlet port to the valve chamber,

wherein the plurality of opening/closing valves are arranged in pairs, forming two lines, to construct a first main passage formed

by the first passages of ones of the paired opening/closing valves so that the first passages are connected in series directly or through a connecting passage to each other, and a second main passage formed by the first passages of the other ones of the paired opening/closing valves so that the first passages are connected in series directly or through a connecting passage, and

in each pair of the opening/closing valves, a single second passage including an inlet port is connected to the first main passage and the second main passage through each valve chamber and each valve port.

3. The integrated gas valve according to claim 1 or 2,

wherein the plurality of opening/closing valves are integrally mounted on a base and the first passages of the opening/closing valves are connected to each other through the connecting passage formed in the base while the main passage is formed by the first passage and the connecting passage.

4. The integrated gas valve according to claim 3,

wherein the first passage in the opening/closing valve and the connecting passage in the base are formed of through holes having the same diameter and the main passage formed of the connected first passage and connecting passage has a substantially constant passage sectional area through its entire length.

5. The integrated gas valve according to claim 1 or 2,

wherein the first passage of the opening/closing valve is formed of a V-shaped passage and the valve port is connected to a

bent portion at the vertex of the first passage.

6. The integrated gas valve according to claim 4,

5 wherein the first passage formed of the V-shaped passage is formed with the vertex being at a position near a sealing portion between the valve element and the valve seat to such an extent that fluid remaining in the valve port during valve-closing time is swept away by fluid flowing through the main passage.

10 7. The integrated gas valve according to claim 2,

wherein the first main passage and the second main passage have equal passage sectional areas.

8. The integrated gas valve according to claim 2,

15 wherein the second passage provides communication between one inlet port and the valve chamber of one of the paired opening/closing valves, and further communication between that valve chamber and the valve chamber of the other one of the paired opening/closing valves.

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